

## A NEW SPECIES OF *HELOPHORUS* FABRICIUS, 1775 (COLEOPTERA: HELOPHORIDAE) FROM TURKEY, WITH A REMARK TO THE KEY TO SUBGENERA IN ANGUS (1992)<sup>1</sup>

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ABSTRACT: A new species of hydrophiloid beetles, *Helophorus* (*Orphelophorus*) *turca* sp. n., is described from high altitude in northern Anatolia (Asiatic Turkey) and compared with the two known species of the genus. Diagnostic characters are supported with electron micrographs. The key to the subgenera of Angus (1992) is briefly discussed.

KEY WORDS: Coleoptera, Helophoridae, *Helophorus*, new species, Turkey

The Helophoridae are a family comprising only a single subfamily of a single genus, *Helophorus*. This genus comprises more than 190 species, represented in three major zoogeographical regions (Palearctic, Nearctic, and Ethiopian) (Balfour-Browne, 1958; Chiesa, 1959; Angus, 1984-1992; Smetana, 1985; Hebauer, 1994; Hansen, 1991, 1999).

In Turkey, 51 species have been recorded, placed in six subgenera (*Atracthelophorus*, *Rhopalhelophorus*, *Transithelophorus*, *Empleurus*, *Eutrichelophorus*, *Trichelophorus*, *Helophorus* s. str.) (Mart and Erman, 2001; Incekara et al., 2002, 2004, 2005).

The subgenus (*Orphelophorus*) d'Orchymont comprises only two species (*H. obscurellus* Poppius, 1907 and *H. arcticus* Brown, 1937). A new species, *Helophorus turca* sp. n., is described from Turkey and the number of *Helophorus* species belonging to the subgenus *Orphelophorus* increased up to three, together with this new species.

### METHODS

Specimens were collected in different surveys of the aquatic Coleoptera of the North Anatolian region since 2004, and this study is based entirely on private collections. The beetles were killed by using ethyl acetate or in 96% ethanol. Aedeagophores of beetles, cleaned with brushes, were dissected under a stereo microscope and left in 10% KOH for 1-2h at room temperature. The photographs of main diagnostic characters were taken using an SMZ-U 1500 Nikon type 104 microscope.

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## SYSTEMATIC ENTOMOLOGY

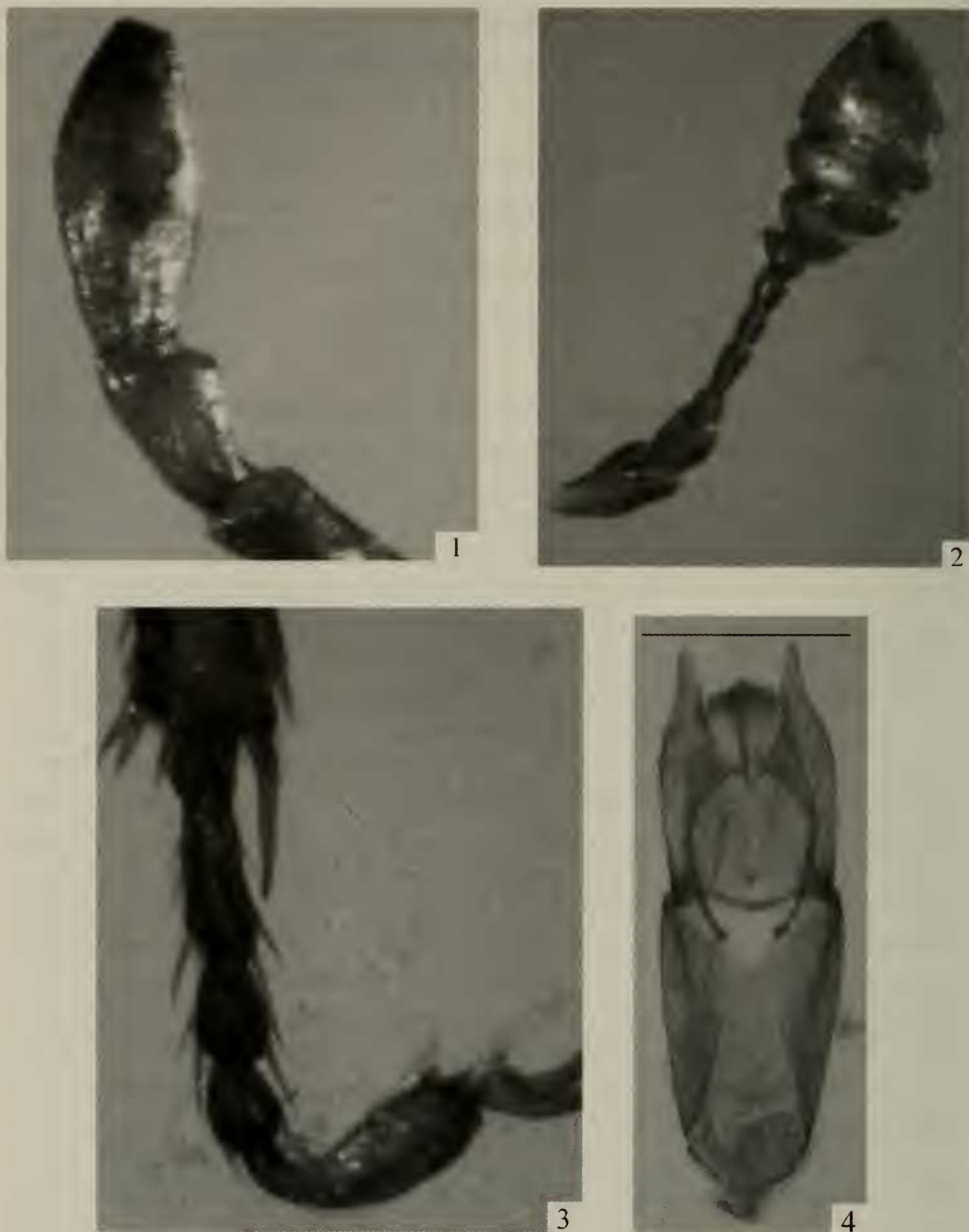
*Helophorus (Orphelophorus) turca* sp. n.**Material Examined**

Type Material: Holotype ♂ (Zoology Museum of Ataturk University): "TR: Giresun, Aksu Yaylası, Essek Meydanı, near Istanbul Suyu, 3000 m a.s.l. Leg. Incekara, 15.VIII.2004. The type locality is stagnant, with a muddy bottom and without vegetation. Paratypes: from the Holotype locality, 18. VII. 2005, 2♂♂; 7.VI.2006, 1♂, 3♀.

**Description**

Length: 4.2-4.5 mm; breadth: 2.2-2.5 mm. General appearance: black (dark brown in one specimen). Head: black with metallic reflections. All surface covered with large granules. "Y" groove distinct, its stem expanded anteriorly and floor of stem with fine granules. Maxillary palpi short and robust, last segment symmetrical and its apex darker (Fig. 1). Antennae 9-segmented (Fig. 2), dark brown and surprisingly with only the 6th segment (cupule) pubescent, with scarcely visible short hairs – the club is glabrous. Pronotum: colouration as head, moderately arched, widest at 1/3 anterior base. Lateral margins raised, slightly serrate, and straightened posteriorly. Anterior angles rather deflexed and not visible from above. Intervals with large rounded granules. Internal intervals obtusely angled. Middle intervals distinctly depressed at posterior third. Externals with larger granules. Mid groove deep, slightly expanded medially. Submedians narrow and deep, submarginals widest. Floor of all grooves covered with fine and scattered granules. Elytra: black, mottled and with intercalary striae of 2-3 punctures (holotype and one paratype have two punctures on left elytron, and three punctures on right elytron. Remaining five paratypes have two punctures on both elytra. Interstices (2, 4, 6, and 8) raised and twice the width of striae. Humeral angles rather raised, curved towards abdomen. Scutellum oval and darker. Legs: Brown, femur distinctly darkened basally. Tarsi 5-segmented, with stiff setae (only the claw segments bears a few long and fine hairs), claw segments of metatarsi swollen and curved at base (Fig. 3).

Aedeagophore: 0.9 mm in length. Parameres slightly shorter than basal piece, their lateral margins strongly sinuate one-third from apex, and apical third of parameres strongly narrowed. Median lobe broad and shorter than parameres (Fig. 4).



Figures 1-4. 1. Right maxillary palpus from ventral side. 2. Right antenna. 3. Right metatarsus. 4. Aedeagophore. The scale bar represents 0.3 mm.

### DISCUSSION

The new species, *Helophorus turca* sp. n., is placed in the subgenus *Orphelophorus* due to four main characters: a) elytra with intercalary striae of 2-3 punctures (see Discussion), b) tarsi with stiff setae, c) upper surface with conspicuous erect recurved setae, and d) head and pronotum with large rounded granules.

*Helophorus (Orphelophorus) turca* sp. n. is similar to *H. aquaticus* externally (*H. turca* sp. n. is more convex and darker), but easily distinguishable from *H. aquaticus* and *H. terminassianae* by its characteristic aedeagophore, swollen last segment of tarsi, pubescent 6th segments of antennae (club is glabrous and this character is an exceptional character for this group beetles) and with intercalary striae of 2-3 punctures. Similarly, other members of the subgenus *Orphelophorus* (*H. obscurellus* Poppius, 1907 and *H. arcticus* Brown, 1937) can be easily separated from the *H. turca* sp. n. by its aedeagophore, and with the other morphological characters. The aedeagophore of *H. turca* sp.n. is almost twice the size of those of *H. obscurellus* and *H. arcticus*.

Angus (1992) constitutes one of most extensive studies on *Helophorus*. There, the diagnosis of the subgenus *Orphelophorus* is: “elytra without intercalary striae of two or fewer punctures, and...” (see page 9). The same statement is also used in Angus (1970b). The holotype and one paratype of *H. turca* new species have two punctures on the left elytron, and three punctures on the right elytron. Remaining specimens have two punctures on both elytra. Therefore, the pertinent portion of the subgenera key in Angus (1992) should be changed to: “elytra without intercalary striae of three or fewer punctures, and...”

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